

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A method of manufacturing a Group III nitride single crystal comprising:
growing a single Group III nitride single crystal by crystallizing an aeriform substance obtained from a material for the Group III nitride single crystal,
wherein the Group III element is Ga, and the aeriform substance includes at least one of a hydride of the Group III element and a hydride of the Group III nitride GaH_x.
2. (Canceled)
3. (Original) The method according to claim 1, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.
4. (Original) The method according to claim 3, wherein the nitrogen (N) containing gas includes at least one selected from the group consisting of NH₃, N₂, and inert gas.
5. (Currently amended) The method according to claim 1, wherein the material is at least one selected from the group consisting of Ga, Al, In, and GaN powder, AlN powder, and InN powder.
6. (Original) The method according to claim 1, wherein the aeriform substance is produced by heating and subliming the material, and the crystallization is performed by cooling the aeriform substance and by allowing the aeriform substance and a reactive gas to react with each other.

7. (Original) The method according to claim 6, wherein the aeriform substance is supplied to a crystal generation region by a carrier gas, and the single crystal is grown in the crystal generation region.

8. (Original) The method according to claim 6, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.

9. (Original) The method according to claim 8, wherein the nitrogen (N) containing gas is a mixed gas containing NH₃ and N₂.

10. (Original) The method according to claim 6, wherein the reactive gas includes at least a NH₃ gas, and further includes at least one selected from the group consisting of a N₂ gas and inert gas.

11. (Currently amended) The method according to claim 6, wherein the material is at least one selected from the group consisting of Ga, ~~Al, In, and~~ GaN powder, ~~AlN powder, and~~ InN powder.

12. (Original) The method according to claim 7, wherein a temperature (T1(°C)) of the material and a temperature (T2(°C)) of the crystal generation region are controlled independently, and the single crystal is grown while satisfying T1 > T2.

13. (Original) The method according to claim 7, wherein the carrier gas includes at least one selected from the group consisting of a N₂ gas, inert gas, and hydrogen gas.

14. (Original) The method according to claim 8, wherein the nitrogen (N) containing gas includes impurities so that the impurities are introduced into the Group III nitride single crystal.

15. (Original) The method according to claim 1, wherein the aeriform substance is produced by heating and evaporating the material, and the crystallization is performed by allowing the aeriform substance and a reactive gas to react with each other.

16. (Original) The method according to claim 15, wherein the aeriform substance is supplied to a crystal generation region by a carrier gas, and the single crystal is grown in the crystal generation region.

17. (Canceled)

18. (Original) The method according to claim 15, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.

19. (Original) The method according to claim 18, wherein the nitrogen (N) containing gas includes at least one selected from the group consisting of a N₂ gas and inert gas.

20. (Original) The method according to claim 16, wherein the carrier gas includes at least one selected from the group consisting of a N₂ gas, inert gas, and hydrogen gas.

21. (Original) The method according to claim 15, wherein the reactive gas includes at least a NH₃ gas, and further includes at least one selected from the group consisting of a N₂ gas and inert gas.

22. (Canceled)

23. (Original) The method according to claim 18, wherein the nitrogen (N) containing gas includes impurities so that the impurities are introduced into the Group III nitride single crystal.

24. (Original) The method according to claim 15, wherein the material is heated, decomposed, and evaporated.

25. (Original) The method according to claim 24, wherein the aeriform substance is supplied to a crystal generation region by a carrier gas, and the single crystal is grown in the crystal generation region.

26. (Canceled)

27. (Original) The method according to claim 24, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.

28. (Original) The method according to claim 27, wherein the nitrogen (N) containing gas includes at least one selected from the group consisting of a N₂ gas and inert gas.

29. (Original) The method according to claim 25, wherein the carrier gas includes at least one selected from the group consisting of a N₂ gas, inert gas, and hydrogen gas.

30. (Original) The method according to claim 24, wherein the reactive gas includes at least a NH₃ gas, and further includes at least one selected from the group consisting of a N₂ gas and inert gas.

31. (Currently amended) The method according to claim 24, wherein the material is ~~at least one selected from the group consisting of~~ GaN powder, ~~AlN powder, and InN powder.~~

32. (Original) The method according to claim 27, wherein the nitrogen (N) containing gas includes impurities so that the impurities are introduced into the Group III nitride single crystal.

33. (Previously presented) The method according to claim 55, wherein the pressure is more than 1 atm and not more than 10000 atm (more than $1 \times 1.013 \times 10^5$ Pa and not more than $10000 \times 1.013 \times 10^5$ Pa).

34. (Original) The method according to claim 1, wherein the material is heated at 300°C to 2400°C.

35. (Original) The method according to claim 1, wherein the material is added during a process of growing the single crystal.

36. (Original) The method according to claim 1, wherein a Group III nitride is prepared as a nucleus of crystal growth, and then the single crystal is grown on the surface of the nucleus.

37. (Original) The method according to claim 36, wherein the Group III nitride that serves as a nucleus is a single crystal or amorphous.

38. (Original) The method according to claim 36, wherein the Group III nitride that serves as a nucleus is in the form of a thin film.

39. (Original) The method according to claim 38, wherein the thin film is formed on a substrate.

40. (Original) The method according to claim 36, wherein the Group III nitride that serves as a nucleus has a maximum diameter of not less than 2 cm.

41. (Original) The method according to claim 36, wherein the Group III nitride that serves as a nucleus has a maximum diameter of not less than 3 cm.

42. (Original) The method according to claim 36, wherein the Group III nitride that serves as a nucleus has a maximum diameter of not less than 5 cm.

43. (Original) The method according to claim 1, wherein the single crystal is grown on a substrate.

44. (Original) The method according to claim 43, wherein the substrate is made of at least one material selected from the group consisting of amorphous gallium nitride (GaN), amorphous aluminum nitride (AlN), sapphire, silicon (Si), gallium arsenide (GaAs), gallium nitride (GaN), aluminum nitride (AlN), silicon carbide (SiC), boron nitride (BN), lithium gallium oxide

(LiGaO₂), zirconium diboride (ZrB₂), zinc oxide (ZnO), glass, metal, boron phosphide (BP), MoS₂, LaAlO₃, NbN, MnFe₂O₄, ZnFe₂O₄, ZrN, TiN, gallium phosphide (GaP), MgAl₂O₄, NdGaO₃, LiAlO₂, ScAlMgO₄, and Ca₈La₂(PO₄)₆O₂.

45. (Original) The method according to claim 1, wherein a growth rate of the Group III nitride single crystal is not less than 100 $\mu\text{m}/\text{h}$.

46. (Original) The method according to claim 36, wherein the Group III nitride is prepared in a crystal generation region, and then a reactive gas flows on the Group III nitride.

47–52. (Canceled)

53. (Currently amended) The method according to claim 1, comprising forming the aeriform substance that includes ~~at least one of a hydride of the Group III element and a hydride of the Group III nitride~~ GaH_x by heating and subliming or evaporating the material for the Group III nitride single crystal in a presence of hydrogen.

54. (Canceled)

55. (Previously presented) The method according to claim 1, wherein the single crystal is grown under pressure.

56. (Currently amended) A method of manufacturing a Group III nitride single crystal comprising:

heating a material for the Group III nitride single crystal in the presence of hydrogen, so that the material is sublimed or evaporated into an aeriform substance; and

crystallizing the aeriform substance to grow a single Group III nitride single crystal,
wherein the Group III element is Ga, and the Group III nitride single crystal is grown by
allowing the aeriform substance and a NH₃ gas to react with each other.

57. (Currently amended) The method according to claim 56, wherein the aeriform substance is at least one selected from the group consisting of includes GaH_x , AlH_x , InH_x , GaN_xH , AlN_xH , and InN_xH .

58. (Previously presented) The method according to claim 56, wherein the single crystal is grown under pressure.

59 - 60. (Canceled)